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Citations:

EP-A-0 315 879
FR-A-2 225 565
US-A-3 172 604
US-A-3 301 486
DE-A-2 823 351
US-A-3 002 288
US-A-3 267 701

Description

[0001]

The present invention pertains to a method and a device for perfuming laundry.

[0002]

It is known that the impression of cleanliness, in particular of laundry is not merely perceived visually, but also subjectively by the scent of the laundry. Laundry with a pleasant scent is perceived to be much cleaner than laundry that has no scent at all. This is the reason why most laundry is perfumed with an aromatic.

[0003]

In domestic applications, the laundry is perfumed by adding an aromatic to conventional detergents or, during the rinsing cycle, with the aid of a fabric softening and aromatic rinsing agent.

[0004]

In some instances, so-called aromatic dryer sheets are added to the laundry in the dryer with an aromatic being added to said aromatic dryer sheets such that the pleasant scent of the aromatic is transferred to the laundry during the drying process.

[0005]

In commercial applications, e.g., in industrial washing plants, the above-mentioned perfuming methods are not utilized because detergents that are not perfumed are utilized in certain instances and said methods are excessively expensive. If the laundry also needs to be relatively free of germs after the laundering process, the laundry usually has an unpleasant odor

that is caused by the typical sterilizing processes found in hospitals, hotels, nursing homes, etc.

[0006]

In large dryers used for commercial applications, it is not sensible to utilize aromatic dryer sheets for perfuming the laundry because the quantities of laundry processed are enormous and the dryer temperatures are significantly higher than in domestic dryers, i.e., the aromatic would decompose due to the high temperature.

[0007]

US-A 3,002,288 describes a dryer with an aerosol container in which an aromatic is introduced into the drum of the dryer at the end of the drying process in order to perfume the laundry. However, the duration during which the aromatic acts upon the laundry is not discussed in detail.

[0008]

DE-A 2 823 351 also describes a method for conditioning and drying laundry in which various treatment substances are repeatedly introduced during the drying process. In this case the rotation of the drum is interrupted and the hot-air blower is switched off so as to prevent losses of the aromatic due to the air transport. The spraying of the conditioning agent is distributed over 10 to approximately 100 spraying nozzles, with the duration of one spraying phase lying between one and ten seconds.

[0009]

The disadvantage of methods for perfuming laundry used so far can be seen in the fact that, although the aromatic is introduced at the end of the drying process, the temperatures in the dryer are still relatively high, i.e., above 60°C. Due to the decomposition of the aromatic caused by these high temperatures, these methods are either not sufficiently efficient or the consumption of the aromatic is correspondingly high and the duration of the perfuming process is correspondingly long.

[0010]

The present invention is based on the objective of proposing a method and a device which make it possible to perfume laundry by means of a conventional aromatic without having to accept the above-mentioned disadvantages.

[0011]

According to the invention, this objective is attained with the characteristics disclosed in the characterizing portion of Claim 1.

[0012]

The essential characteristic of the invention is that the aromatic is sprayed into the dryer after the drying process in order to disperse the aromatic into the laundry fabric. This takes place at a temperature below 60°C within a duration of less than 3 min. The aromatic is sprayed into the dryer by means of a spraying nozzle that is charged with compressed air.

[0013]

One significant advantage can be seen in the fact that the aromatic may consist of conventional perfume oil in concentrated form. Due to this measure, the respective scent can be chosen arbitrarily and individual scent creations can also be utilized. In addition, the selection of the respective scent no longer depends on the manufacturer as would, for example, be the case when using perfumed detergents.

[0014]

The method according to the invention also provides the advantage that the perfuming of the laundry takes place at the end of the drying process, i.e., the perfume is introduced into the laundry at the end of the cleaning process and the scent remains in the laundry for a prolonged period of time.

[0015]

It is important that the perfume oil is not introduced into the dryer until the temperature in the dryer has dropped to a value below 60°C. This measure ensures that the perfume oil is not decomposed and rendered ineffective as would be the case at higher temperatures.

[0016]

The time during which the perfume oil acts upon the laundry is relatively short and lies between approximately 2-3 min. The drum of the dryer revolves during this time period in order to evenly disperse the perfume into the laundry. Subsequently, the laundry can be removed from the dryer and processed in conventional fashion.

[0017]

This method is very cost-efficient because conventional perfume oil in highly

concentrated form is utilized. During the spraying process, this perfume oil is very finely dispersed into the laundry. Due to this measure, only a few milliliters of perfume oil may suffice for providing, for example, 50 kg of laundry with a fresh scent. Naturally, the intensity of the scent can be arbitrarily varied within a broad range by adjusting the quantity of perfume oil sprayed into the dryer.

[0018]

In order to carry out this method, the invention proposes a device that is charged with compressed air and directly sprays the perfume into the dryer via a spraying nozzle that is arranged within the region of the dryer lid. According to the invention, the exposure time and the quantity of the aromatic are controlled by means of an electronic or mechanical sequence control, preferably an SPC control system. The invention also proposes to integrate this perfuming device into the dryer, with the sequence control for the perfuming process forming part of the dryer program. The addition of such a perfuming device to a conventional dryer is associated with a relatively low expenditure.

[0019]

The object of the present invention not only results from the object of the individual claims, but also from the combination of the individual claims with one another. All indications and characteristics disclosed in the application documents, including the abstract and, in particular, the graphic illustration shown in the figure, are claimed as essential for the invention as far as they are new in comparison to the state of the art individually or collectively.

[0020]

The invention is described in greater detail below with reference to the figure, which merely shows one possible embodiment of the invention. The figure and the following description contain additional essential characteristics and advantages of the invention.

[0021]

The figure shows the basic components of the perfuming device for carrying out the method.

[0022]

The device for carrying out the perfuming method essentially consists of a compressed air system, by means of which the aromatic is sprayed into the dryer via a spraying nozzle 9.

[0023]

The compressed air system contains a compressed air connection 1 that is, for example, supplied with compressed air by a 6 b compressed air generator. In order to lower the pressure to the desired operational value, a pressure reducer 2 is provided in the air circuit and another pressure reducer 3 is provided in front of the supply container 8.

[0024]

The supply container 8 contains the perfume oil. The supply container 8 is pressurized via the compressed air connection 6 such that the perfume oil is discharged from the supply container 8 at the connection 7 and transported to the connection 12 of the spraying nozzle 9.

[0025]

The air for atomizing the perfume oil is fed to the connection 11 of the spraying nozzle 9 via the solenoid valve 4 and the pressure reducer 2.

[0026]

The solenoid valve 5 controls the supply of compressed air to the plunger valve connection 10 of the spraying nozzle 9 and determines the quantity of the perfume oil being sprayed into the dryer. This is realized by the plunger releasing a certain volume for the perfume oil, namely just as much as should be sprayed into the dryer.

[0027]

The process sequence is controlled by the sequence control 13, with this sequence control preferably consisting of a stored-program control system (SPC).

[0028]

The perfuming device can be arranged on existing dryers relatively easily by mounting the spraying nozzle 9 on the lid of the dryer. The laundry is freely accessible at the lid, i.e., the perfume oil is able to directly disperse into the laundry. The invention proposes to integrate the entire device into the dryer, with the sequence control forming part of the dryer program.

[0029]

The process sequence takes place as described below: after the laundry has been dried, the temperature in the dryer is reduced to less than 60°, with the spraying nozzle 9 being charged with a predetermined quantity of perfume oil while the temperature is reduced.

[0030]

Once the desired temperature in the dryer is reached, the perfume oil is sprayed into the dryer while the dryer drum revolves in order to evenly disperse the aromatic into the laundry. The time during which the perfume oil acts upon and is dispersed into the laundry lies between approximately 2-3 min. Subsequently, the dried, perfumed laundry is removed and additionally processed in conventional fashion.

[0031]

During a test that was carried out over several months, no skin irritations that could have been caused by the perfumed laundry occurred due to the small quantities of perfume oil used. Laundry with a fresh scent represents a particular improvement in hospitals, hotels, nursing homes, etc.

List of reference numbers

[0032]

- 1 Compressed air connection
- 2 Pressure reducer
- 3 Pressure reducer
- 4 Solenoid valve
- 5 Solenoid valve
- 6 Compressed air connection
- 7 Aromatic outlet
- 8 Supply container
- 9 Spraying nozzle
- 10 Plunger valve connection
- 11 Spraying air connection
- 12 Aromatic connection
- 13 Sequence control

Claims

1. A method for the perfuming of laundry inside a drier, in which a liquid scent is sprayed into the drum of the drier, characterised in that the perfuming takes place after completion of the drying process, at a temperature below 60° Celsius in less than three minutes.
2. The method for the perfuming of laundry according to Claim 1, characterised in that the spraying in of the scent is brought about by means of a spray nozzle (9).
3. The method for the perfuming of laundry according to one of Claims 1 - 2, characterised in that the spraying in of the scent takes place in the region of the charging lid of the drier.
4. The method for the perfuming of laundry according to one of Claims 1 - 3, characterised in that the spraying in of the scent takes place inside the drier.
5. The method for the perfuming of laundry according to one of Claims 1 - 4, characterised in that the spraying in of the scent is brought about by a storage container (8) acted upon by compressed air.
6. The method for the perfuming of laundry according to one of Claims 1 - 5, characterised in that the controlling of the method is brought about by an electronic/mechanical sequence control in the form of a SPS control.
7. The method for the perfuming of laundry according to one of Claims 1 - 6, characterised in that this method is integrated into the process sequence of a conventional drier programme.

